

RISK MANAGEMENT

Risk Management



What Price are We Paying Now?

Historically
non-threat losses
have almost always
exceeded threat losses

Desert Shield
Desert Storm

Casualties

Hostile fire	2.9 (20%)
Accidents	11.14 (75%)
Fratricide68 (5%)

The Doha Catastrophe

- Dead
- Injured
- Tanks destroyed
- SP artillery destroyed
- Trucks
- 45 tons of ammunition

**The non-threat losses
can be cut 50-100%**

Risk Management



Battle and Non-Battle Casualties

Rate* per 1,000 soldiers and percent

Army	W.W.II 1942-45	Korea 1950-53	Vietnam 1965-72	DS/S 1990-91	NTC FY93 (BLUFOR-GROUND)
Accident	95.57 56%	120.33 44%	154.66 54%	11.14 75%	2.23 3%
Friendly Fire	1.50*** 1%	3.03*** 1%	2.67*** 1%	.68 5%	7.87**** 9%
Enemy Action	73.61 43%	148.56 55%	131.20 45%	2.90 20%	74.17**** 88%

* Per 12 months for W.W.II, Korea and Vietnam; 14 months for DS/S; per rotation NTC.

** Deaths and injuries (ground and aviation) for entire war/operation.

*** Research based estimate (2% of all direct- and indirect- fire losses).

**** Simulated (MILES) direct fire vehicle kills.

Risk Management Concept

- Risk management is a systems based concept. It is the **application of systematic thinking** to the problems associated with making military operations safer and more effective.
- Originally developed to improve safety in the development of weapons, aircraft, space vehicles, and nuclear power.
- Found to be especially effective in dealing with high-risk complex activities.

Risk Management Concept

- Not a science, it doesn't provide leaders with a precise course of action.
- Not just “**common sense**” or “**something good leaders have always done.**”
- A **process** that can be fully integrated into established Army systems for force development, projection and sustainment.

Risk Management Concept

- How much of a problem a hazard presents can't be determined until the hazard is converted to a risk.
- When the hazard is expressed in terms of how likely it is to occur, and how serious the consequences are if it does occur
then the commander can make rational decisions about how to deal with that hazard.

Key Definitions

- **Activity Hazard Analysis (AHA)**

- ◆ a documented process by which the steps (procedures) required to accomplish a work activity are outlined, the actual or potential hazards of each step are identified, and measures for the elimination or control of those hazards are developed. (EM 385-1-1, p. 11)
- ◆ shall be prepared and documented for each USACE activity as warranted by the hazards associated with the activity. (EM 385-1-1, para. 01.A.10)

Risk Management



Key Definitions

- **Position Hazard Analysis (PHA)**

- ◆ a documented process by which the duties (or tasks) of an employee's job position are outlined, the actual or potential hazards of each duty are identified, and measures for the elimination or control of those hazards are developed. (EM 385-1-1, p. 12)
- ◆ shall be prepared and documented for each USACE position as warranted by the hazards associated with the position's tasks. (EM 385-1-1, para. 01.A.06)

Risk Management



Applicability to USACE

- Risk Management is the application of AHAs and PHAs to identify and control hazards.
- The 5-Step Risk Management Process is used to apply the AHAs and PHAs.

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Activity Hazard Analysis

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Identify the principal steps involved and the sequence of work activities	Analyze each principal step for potential hazards	Develop specific controls for each potential hazard
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
List equipment to be used in the work activity	List inspection requirements for the work activity	List training requirements, including hazard communication

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Key Definitions

- **Hazard:**

- ◆ any real or potential condition that can cause injury, illness or death of personnel, or damage to, or loss of equipment / property. (AR 310-25)
- ◆ a condition with the potential of causing injury, loss of material, or reduction of ability to personnel, damage to equipment or structures to perform a prescribed function.

- **Risk** - an expression of possible loss over a specific period of time or number of operational cycles.

Risk Management



Key Definitions

- **Risk** - an expression of potential loss stated in terms of hazard exposure, severity, and probability. Components:
 - ◆ **Exposure** - the condition of being subjected to a hazard for a defined period of time.
 - ◆ **Severity** - the expected consequence, defined by degree of injury, property damage, or other mission impairing factor, that could occur from a hazard.
 - ◆ **Probability** - the likelihood that given an exposure to a hazard, an accident will occur.

Key Definitions

- **Risk Management** - the process of identifying and controlling hazards to protect the force.
- **Risk Assessment** - the process of detecting hazards and systematically assessing their overall risk. It involves the first two steps of the Risk Management process.
- **Gambling** - Making non-systematic risk decisions.

Risk Management



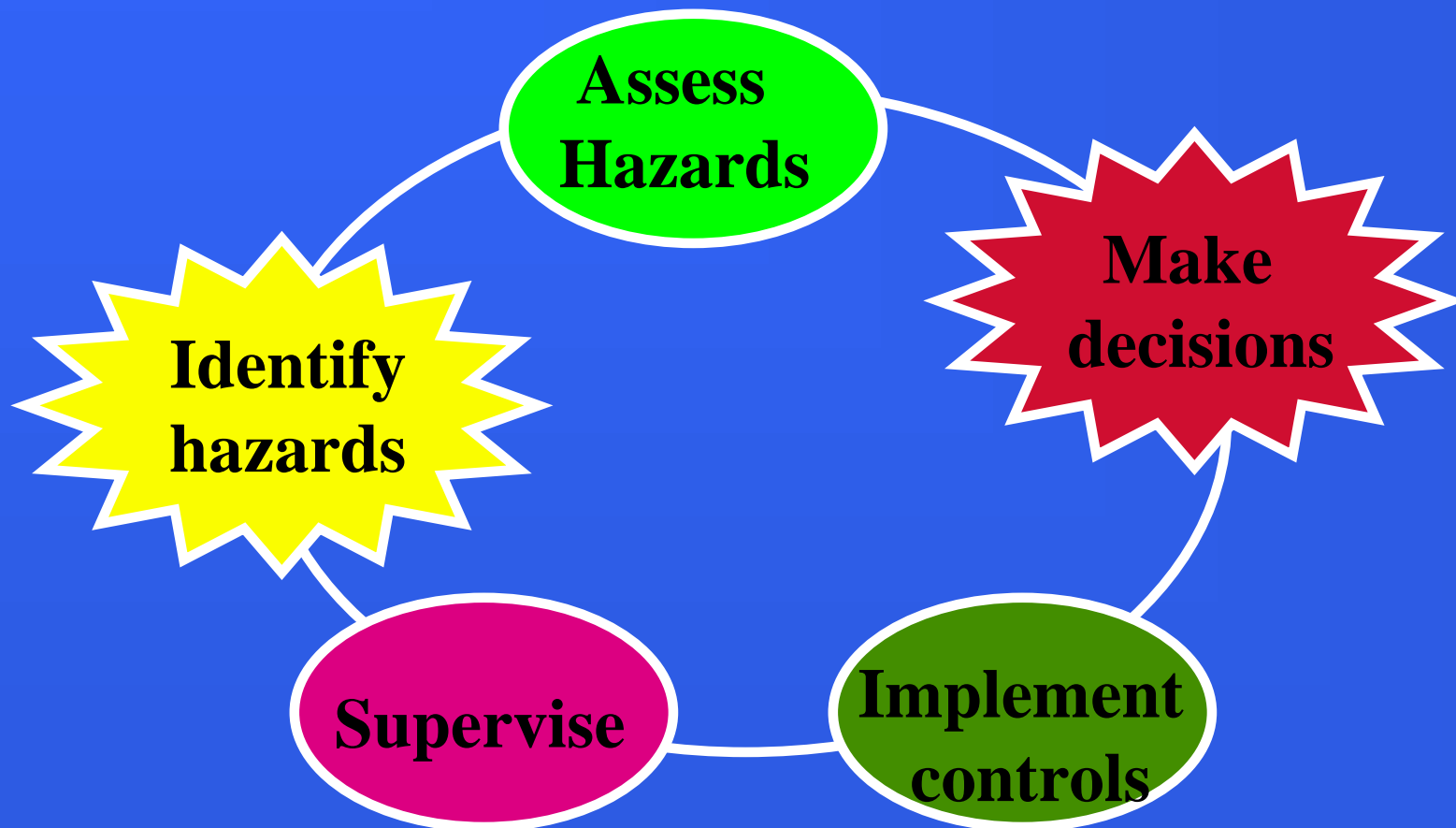
Fundamental precepts

- The greater the risk the more senior the final decision maker should be.
- When in the high-risk zone, everyone from the commander to the individual must be aware of the risk implication.
- All risk variations that can be controlled, must be controlled.
- By-the-book disciplined operations are mandatory.

Risk Management



Risk Management Process



Risk Management



Risk Management Process

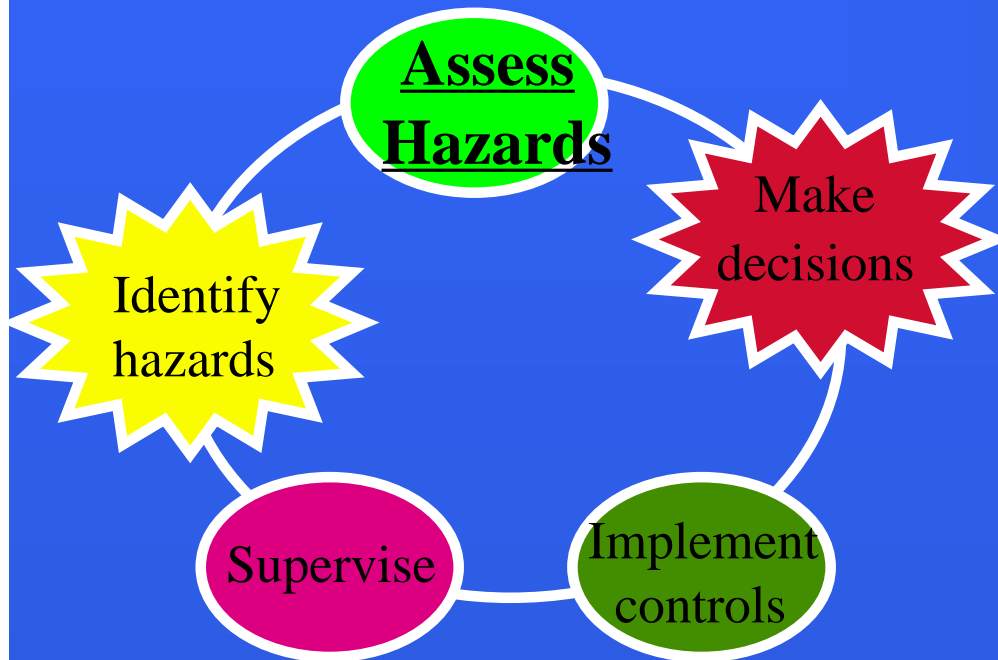


- **Identify Hazards** - identify the **major events** in the operational sequence and the hazards associated with all **specified and implied tasks**.
- Assess Hazards
- Develop controls
- Implement controls
- Supervise

Risk Management



Risk Management Process.

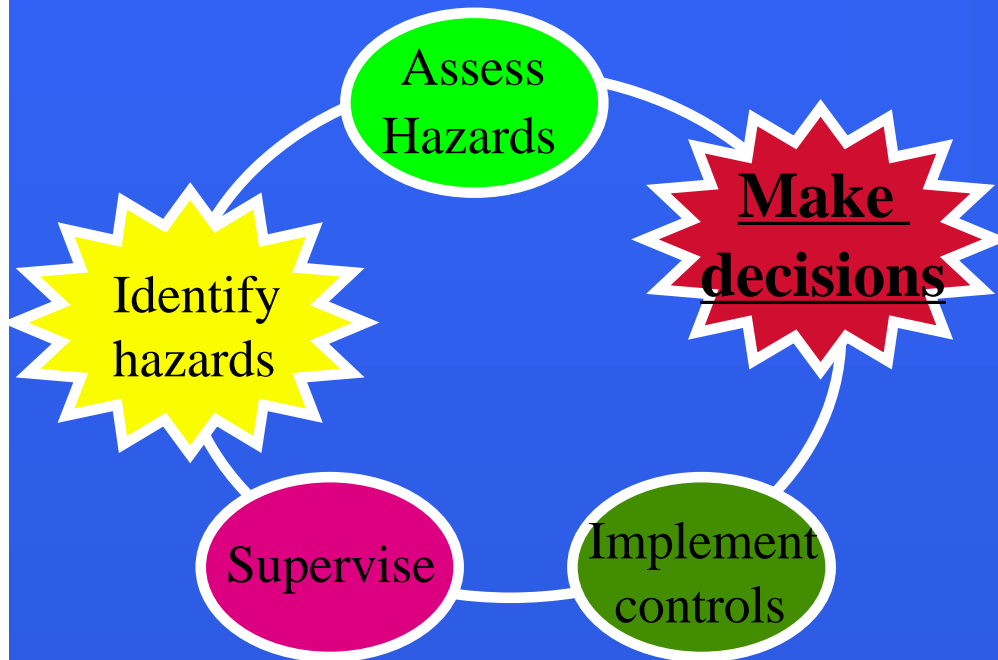


- Identify Hazards
- **Assess Hazards**- determine the magnitude of the risk by estimating the probability (frequency) and the effect (severity) if the event occurs.
- Develop controls
- Implement controls
- Supervise

Risk Management



Risk Management Process.

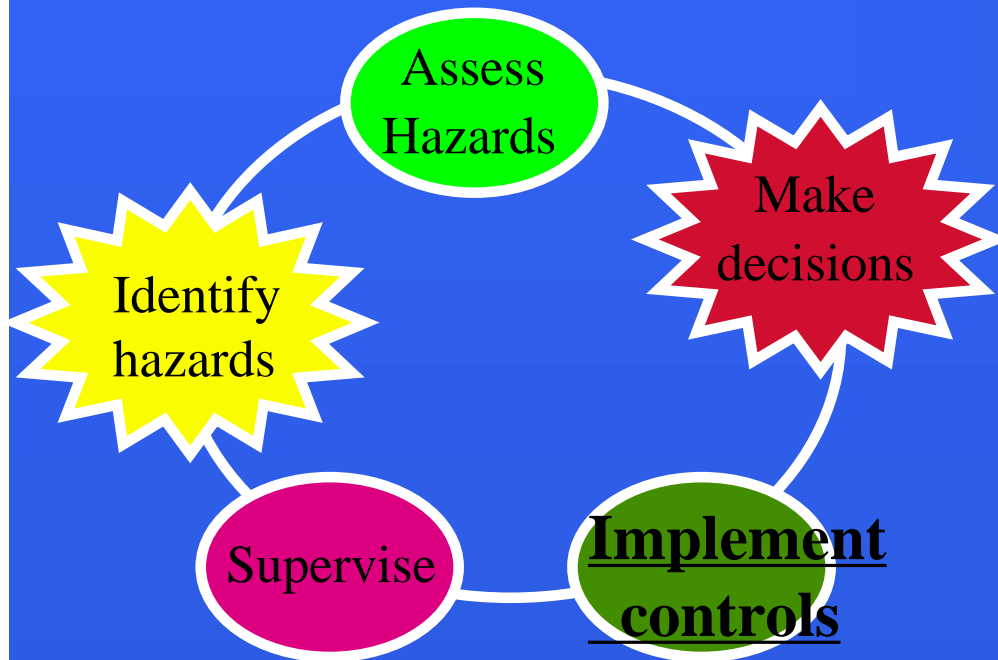


- Identify Hazards
- Assess Hazards
- **Develop Controls and Make Risk Decisions** - make risk acceptance decisions by balancing the benefits against the risk. Eliminate unnecessary risks and reduce the magnitude of mission-essential risks by applying controls.
- Implement controls
- Supervise

Risk Management



Risk Management Process.

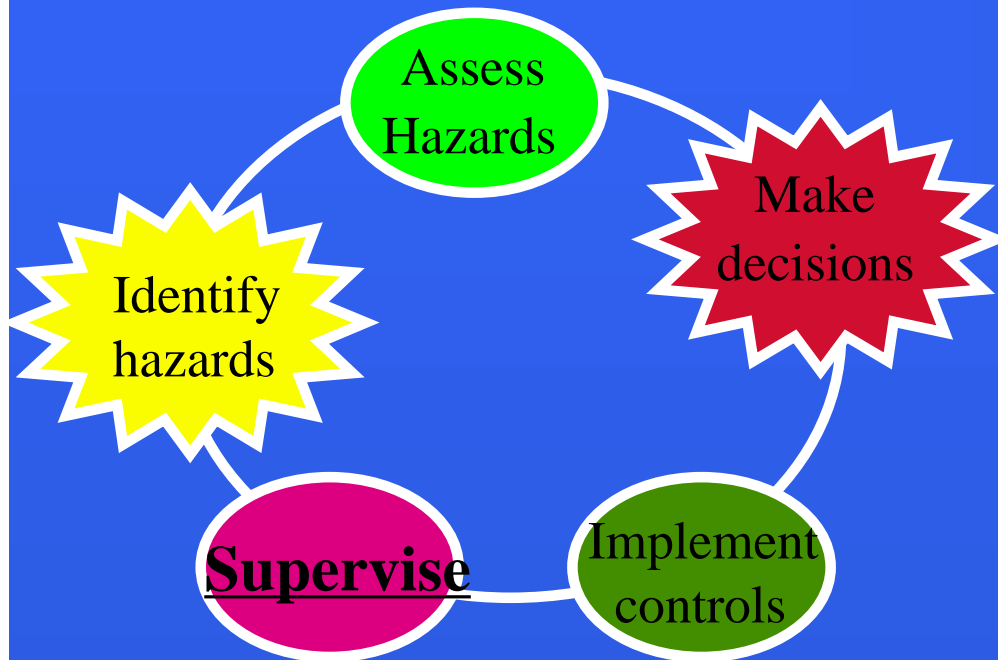


- Identify Hazards
- Assess Hazards
- Develop controls
- **Implement controls**-integrate controls into:
 - ◆ Plans,
 - ◆ Operations orders (OPORDs),
 - ◆ Standing Operating Procedures (SOPs),
 - ◆ Training performance standards,
 - ◆ Rehearsals.
- Supervise

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Risk Management Process.



- Identify Hazards
- Assess Hazards
- Develop controls
- Implement controls
- **Supervise**- determine the effectiveness of risk controls by supervising and enforcing controls and standards.

Key Points of Risk Management

- **Integrate risk management into planning.**
 - ◆ It's easier to integrate risk management early in the life cycle of any operation (training or combat).
 - ◆ "Quality must be built in at the design stage. It may be too late, once plans are on their way."

W. Edwards Deming
Out of the Crisis, pg. 49

Risk Management



Key Points of Risk Management

- **Accept no unnecessary risks.**
 - ◆ Key word - **“unnecessary”**.
 - ◆ Risk that does not contribute meaningfully to the mission.
 - ◆ **“Don’t never take a chance you don’t have to.”**

Standing Orders
Rogers’ Rangers 1759

Key Points of Risk Management

- **Make risk decisions at the proper level.**
 - ◆ The “**proper level**” is the level where the decision maker has the maturity and experience to make a good decision. Normally, this would be the leader responsible for the mission.
 - ◆ Decisions should be made at the lowest possible level as long as the decision maker has the experience and maturity to make a good decision.

Key Points of Risk Management

- Accept risks if the benefit outweighs the cost.
 - ◆ Can not eliminate all risks.
 - ◆ “...accept risk only to the point that the benefits outweigh the potential losses.”

Dennis J. Reimer, General, USA
Chief of Staff

Risk Management



Hazard Detection Resources / Tools

- Experience.
- Experts.
- Regulations and manuals.
- Accident data.
- Hazard scenarios.
- Interface analysis.
- Risk assessment matrix.
- Readiness assessments.
- Safety quizzes.
- Cause and effect diagram.
- Change analysis.
- Energy trace & barrier analysis.
- Logic diagrams.
- Mapping techniques.
- What-if analysis.
- Training realism assessment.
- Opportunity assessment.

Risk Management



Levels and responsibilities of safety

● Command level

- ◆ Plan for safety.
- ◆ Set safety standard.
- ◆ Conduct training consistent with abilities of trainers.
- ◆ Resource safety.
- ◆ Make risk acceptance decisions when you can't eliminate the risk.

Levels and responsibilities of safety

- **Leader level**

- ◆ Emphasize adherence to standards and accident prevention.
- ◆ Assess and balance risk against training or operational requirements.
- ◆ Recognize then eliminate or control, health and safety hazards.

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Levels and responsibilities of safety

- **Individual level**

- ◆ Understand individual safety responsibilities.
- ◆ Recognize unsafe acts and conditions.
- ◆ Perform to standards.

Traditional process vs. RM

- **Traditional Approach**

- ◆ "Common Sense".
- ◆ Random hazard ID and assessment.
- ◆ More omission.
- ◆ Uninformed decision.

- **Risk Management**

- ◆ Methodical.
- ◆ Less omission.
- ◆ Informed decision.

Risk Management



Consequences of failing to manage risks effectively:

- Death and injury to soldiers, civilian employees, and the public
- Damage to Army/Government equipment
- Mission failure
- Ineffective training
- Violation of local, state, and Federal statutes
- Legal liability